# Comments from JABA Readers

## SOME MERITS AND LIMITATIONS OF HAND-HELD COMPUTERS FOR DATA COLLECTION

A hand-held computerized data collector has a number of advantages over paper-and-pencil data collection methods. Specifically, data are put into a computerized data collector by depressing a key pad, thus allowing the observer to record responses without looking away from the event. This instrument is more convenient to use than the conventional arrangement of clipboard, data sheet, pencil, session timer, and tape recorder with prerecorded cues when using interval recording procedures because the observer does not have to scan and score the correct interval or behavior on a data sheet while manipulating various pieces of equipment. Furthermore, because data are automatically recorded and printed, transpositional errors are reduced and the number of behavior categories that can be recorded is increased.

After using a hand-held computerized data collector (Assistant Data Acquisition System by Human Technologies Inc.; several companies manufacture portable computers that behavior analysts have used for data collection including Epson, Hewlett-Packard, and Panasonic. The behavior analysts we spoke with programmed their computers for their particular needs. We were unable to locate commercially available software for data collection.) for several weeks, three problems related to the cuing sound signaling intervals and data input were apparent for our community mental health setting. First, data collection was impeded in the presence of loud clients because auditory cues for interval recording could not be heard. Second, auditory cues in a relatively quiet room resulted in excessively reactive data collection. For example, the cuing sound for data input appeared to alert some clients to the specific behaviors being recorded during various phases of a social skills program; this may have influenced the results in an unpredictable manner. Third, when collecting interobserver agreement data, the data entry cue of one observer could be easily heard by the second observer. This could result in invalid interobserver agreement values, because the cuing sound of the primary observer's data input could prompt the secondary observer to make a recording response also. Likewise, if the primary observer does not make a recording response, the resulting silence could serve as an unwanted signal to the reliability observer not to record.

We solved the problems resulting from the cuing sound by installing a jack for an earphone in the hand-held computer. This modification was inexpensive ($.80 for a minature closed circuit jack and $1.50 for a flex-cord earphone) and required approximately 30 min to install. The necessary changes were made by (a) removing the four screws that hold the recorder together, (b) moving the round, black speaker one inch to right, (c) drilling a 3/8-inch hole in the left side of the top half of the case (opposite the data display window), (d) inserting the mini-jack in the drilled hole, and (e) soldering two insulated wires from the opposite terminals of the mini-jack to the two pads on the integrated circuit board labeled "buzzer." These instructions were used independently by two colleagues to install the earphone and mini-jack on this equipment. Similar problems were also encountered with an Epson hand-held computer and were also remedied by installing an earphone (Romanczyk, personal communication, April, 1988).

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*Received March 4, 1988*
*Final acceptance July 27, 1988*